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REQUEST FOR PROPOSALS 1997 CATEGORY III
ECOSYSTEM RESTORATION PROJECTS AND PROGRAMS

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I. Executive Summary

A. **Project Title:** Watershed Management Strategy for the Big Chico Creek Watershed Phases I, II and III

Applicant Name: Big Chico Creek Watershed Alliance

B. **Project Description:** Development of a Watershed Management Strategy for the Big Chico Creek Watershed

Primary Biological/Ecological Objectives: Rivers link forests to the seas - and the interconnectedness between forests, rivers and seas is a source of life for all of us living on the earth. A major priority to help reinforce and strengthen this inter-connectedness is the restoration, preservation and protection of important spawning habitat for Spring Run Salmon and Steelhead Trout and non-natal rearing habitat for Spring, Fall and Winter Run Salmon, Splittail and Steelhead in the watershed through the development of an adaptive management plan.

C. **Approach:** Big Chico Creek Watershed Alliance (BCCWA), comprised of private and public landowners, state and federal resource managers, city and county government, conservation groups, educational institutions and other interested parties will develop and implement an integrated Watershed Management Strategy (WMS). The WMS will enhance and maintain the watershed landscape ecosystem processes such that economic and ecological productivity in the watershed can be sustained indefinitely. The WMS will proceed in three phases:
Phase I will begin in Spring 1998 developing the Existing Conditions Report (ECR) and will include the research, needs assessment, projects and documentation. A Stakeholders Survey of Issues and Concerns will also be developed in during Phase I. This survey will provide a forum for land owners and other interested parties to express their views regarding what is best for the watershed.

Phase II begins in Fall 1998 and will create the stakeholder's WMS using adaptive management techniques based on Phase I results. Watershed management and usage methods will be determined based on thorough consultations with those living in the watershed, technicians and engineers serving as their advisors, and flexible implementation systems will be utilize monitoring to determine success, as well as for the progressive correction of deficiencies in watershed management. Phase II will be completed by Late Summer 1999. *Phase III* includes implementation and monitoring of the WMS recommended projects and programs beginning in Fall 1999. This phase produces yearly reports related to identified projects and will create flexible management tools for future actions based on monitoring data. Phase III will be on-going as projects are identified and funding becomes available.

- **Tasks:** This grant application requests funding for Phases I and II only. Funding for Phase III will be solicited at a later date. (Please see *Attachment A* - Proposed Scope of Work).

Schedule: The preliminary schedule for the completion of the tasks and deliverables will be in phases. Phase I, will take about 7 months, Phase II about 10 months and Phase III will be completed as implementation and funding is available. Out-reach to stakeholders will be an on-going process and, in fact, stakeholders (i.e. landowners) may change and could be more or less active as their personal or agency needs are met during the process.

D. **Justification for Project and Funding by CALFED:** The development and implementation of a WMS will provide tools to lessen the negative impacts to the watershed that have contributed to the serious decline of many species, especially the remaining native anadromous fish. Unsound land and water use practices would likely have adverse impacts on the resources within the watershed. Poor management could result in further decline or even loss of anadromous salmonids and other at-risk species including those listed under the Endangered Species Act that are identified by the CALFED Bay-Delta Program. The BCCW is recognized as a priority watershed for restoration by CALFED in their *Ecosystem Restoration Program Plan*, by U.S.F.& W.S. in the *Revised Draft Restoration Plan for the Anadromous Fish Restoration Program (AFRP)*and by the C.D.F.& G. in the *Restoring Central Valley Streams*. BCCW is one of only four streams that still provides habitat for both Spring Run Salmon and

Steelhead Trout. Big Chico Creek and its tributary watersheds also serve as spawning habitat for Fall and Late Fall Run Chinook Salmon, rearing habitat for both runs, the endangered Winter Run Chinook Salmon; Splittail and habitat for other native species.

E. **Budget Costs and Third Party Impacts:**

Phase I	Phase II	Phase III
$276,531	$146,299	Funding will be solicited at a later date.

All impacts from this project are beneficial. There are no third party impacts in this proposal.

F. **Applicant Qualifications:** The BCCWA has been the advocate for restoration and protection of the watershed since 1991 and has been successful in compelling private landowners and public concern to complete important projects identified in documents and plans by CALFED, U. S. F. & W. S. and C. D. F. & G's. This dedication to the Goals and Objectives created by BCCWA also identified in the above documents, indicates strong support for watershed protection utilizing local and regional technical expertise. In 1997 BCCWA formed a partnership with California State University, Chico (CSUC) borrowing on the broad-based knowledge and experience of the faculty, staff and graduate students. The successful completion of all three phases of the WMS process will be administered by Dr. Donald Holtgrieve as Project Director. Dr. Holtgrieve has served as project director for the Deer Creek and Upper Butte Creek projects locally. The Director will administer all contracts and grants related to the project and programs for student internships and research, as needed.

The CSU, Chico The Research Foundation will provide fiscal management of funding through the Office of Sponsored Programs.

Big Chico Creek Watershed Alliance (BCCWA) is a citizen based group and is responsible for hiring the Project Manager. BCCWA currently has a 3/4 time funded Watershed Coordinator responsible to the BCCWA for administration services such as the coordination of meetings, task activities, distribution of pertinent information and reports, preparing fiscal and planning reports, supervising and reviewing all work performed and all other administrative services needed for contract completion.

BCCWA will be the lead entity that contributes landowner and citizen cooperation to the process -- the single most important component to the success of implementing the actions identified by CALFED. BCCWA will also coordinate public and private educational programs linked to watershed planning through local workshops, school districts and CSUC. BCCWA will also develop and implement a community outreach program to ensure public involvement and education in all phases of the planning, implementation, and monitoring process.

G. **Monitoring and Data Evaluation:** The BCCWA will be responsible for the development of project implementation and technical monitoring plans as identified in Phase II of the WMS process. Repair of flood control structures for fish passage, gravel recruitment and management plans and riparian restoration plans will have monitoring protocols included in each plan or project. An important component of Phase I will be the establishment of permanent cross sections for replicatible data collection and monitoring in all drainages. BCCWA will rely on a team of technical experts from public and private agencies and CSUC in the development of data evaluation and monitoring during Phase I and II of the WMS. During Phase III funding will be sought to implement those plans and projects and institute the monitoring protocols.

H. **Local Support/Coordination with other Programs/Compatibility with CALFED objectives:**

- Department of Water Resources/U. S. Geological Survey/Environmental Protection Agency/City of Chico water quality monitoring programs
- Streaminders Adopt-Creek Program (storm drain identification education program)
- California Department of Fish & Game Bio-Assessment Training
- The Chico Creek Nature Center, Programs for Public Environmental Education and K-12 School Children
- Chico Unified School District, Environmental Education with hands-on field training in the watershed
- Little Chico Creek Educational Consortium, Specialized Environmental Education Programs for children K-6

II. Title Page

a. Title of Project: Development of a Watershed Management Strategy for the Big Chico Creek Watershed, Phases I, II and III

b. Name of Applicant:

Big Chico Creek Watershed Alliance
Suzanne Gibbs, Watershed Coordinator
1162 E. 7th Street, Chico, CA 95928
Phone: 916-342-3429 Fax: 916-899-5105

The CSU, Chico The Research Foundation
Donald Holtgrieve, Office of Sponsored Programs
California State University, Chico , CA 95929-0870
Phone: 916-898-5780 Fax: 916-898-6781

c. Type of Organization: The Big Chico Creek Watershed Alliance is a community based organization whose members represent a broad cross-section of the rural watershed and Chico urban areas. Landowners both private and public, state and federal agencies, conservation groups, educational institutions, city and county government, technical consultants and the public are active members of the watershed group. Approval of process, projects and programs is accomplished by consensus.

d. Tax Identification Number: 68-0386518

e. Technical Contact:

Dr. Donald Holtgrieve, Professor of Environmental Planning
Department of Geography and Planning
CSU, Chico, Chico, CA 95929-0425
Phone: 916-898-5780 Fax: 916-898-6781

Financial Contact:

Jeff Wright, Director, Office of Sponsored Programs
CSU, Chico The Research Foundation
California State University, Chico
Chico, CA 95926-0870
Phone: 916-898-5700 Fax: 916-898-6804

f. Participants/Collaborators: Big Chico Creek Watershed Alliance, California State University, Chico, City of Chico, Butte County, Tehama County, Metcalf & Eddy Inc., Bidwell Park and Playground Commission, Streaminders, U. S. F & W. S., Chico Unified School District, California Dept. of Fish & Game, Butte Environmental Council, California Dept. of Water Resources, State and Regional Water Quality Control Boards, Sierra Pacific Industries, California Dept. of Parks and Recreation, The Sacramento River Preservation Trust, For the Sake of the Salmon, U. S. Geological Survey, The Chico Creek Nature Center, M & T Chico Ranch, Yahi Group of the Sierra Club.

g. RFP Project Group: Group 3, Services

III. Project Description

a. Project Description and Approach: Rivers and creeks have various functions - natural, social, spiritual, and cultural - including nurturing the living things in their watersheds, supporting human life and productive activities, and providing rest and relaxation. The Big Chico Creek Watershed Alliance (BCCWA) will develop and implement a Watershed Management Strategy (WMS) sensitive to these needs in three phases creating a blueprint for the restoration and protection of watershed resources. The WMS will be created by BCCWA in partnership with CSU, Chico and other named service contractors. The necessity for a management plan has been identified in CALFED's Ecosystem Restoration Program Plan, Executive Summary, the U.S.F.& W.S.'s Draft Restoration Plan for Anadromous Fish Restoration, and C.D.F.& G.'s Restoring Central Valley Streams: A Plan for Action. Together these agencies place a high priority on the development of a watershed-wide management plan and the inclusion of a hydrology / sediment / gravel transport study and gravel management plan. These plans are important for the restoration and protection of critical habitat for Spring Run Salmon and Steelhead Trout. Also cited was the need for revegetation of denuded stream reaches, restoration and maintenance of riparian habitat in order to assist in the recovery of special-status fish and wildlife populations, the need to repair or rebuild flood control structures at Five Mile and Lindo Channel for improved fish passage, and replenishment of spawning gravel in stream reaches that have been modified for flood control. The WMS will create and implement education programs to improve management practices, land use changes and city and county planning regulations through workshops and technical presentations. A Technical Advisory Committee will be established and responsible for peer review of data evaluation and monitoring protocols.

The WMS will be accomplished in three Phases with Phase I completing a *"Survey of Issues and Concerns"* (Survey) and development of an *"Existing Conditions in the Watershed Report"* (Report). The Survey will identify issues and concerns of stakeholders through public meetings and educational workshops with outreach to all interested parties accomplished via print and television media, newsletters and personal contact. These public meetings will be professionally facilitated. The Report will evaluate the geologic status, riparian corridor conditions, the fluvial geomorphology, and urban and recreational development in the watershed. The Report will be developed in conjunction with CSUC, employing the resources of faculty, personnel and student interns and Metcalf & Eddy Inc., as hydrology consultants. The Survey and Report will be coordinated by the Project Manager.

Phase II will develop the stakeholders Watershed Management Strategy handbook based on data collected in the Survey and Report in Phase I. Public meetings will be professionally facilitated to accommodate the unique habitat management needs of each drainage. The WMS will serve as a tool for the protection and restoration of the watershed ecosystem that provides for the recovery of special-status fish and wildlife. Phase II will also identify and develop implementation measures, monitoring protocols, restoration projects, educational projects and programs to improve and provide high-quality habitat for fish and wildlife.

Phase III projects and programs identified in Phase II will be implemented and monitored as funding allows.
(Please see *Attachment A* - Proposed Scope of Work.)

b. Location: The Big Chico Creek Watershed is located in Butte and Tehama Counties and includes the drainages of Big Chico Creek, Lindo Channel, Rock, Mud and Sycamore Creeks. The Big Chico Creek Watershed is located east of the Sacramento River at river mile #193 (upstream from Sacramento) and on the western slopes of the Sierra Nevada Mountain Range in Northern California.
(Please see *Attachment B* - Big Chico Creek Watershed Map)

c. Expected benefits: The development and implementation of a Watershed Management Strategy will help protect important aquatic and riparian habitat for out-migrating salmonid juveniles and rearing habitat for non-natal salmonids, occasional splittails, and other species of concern in the watershed. The WMS will establish baseline data that identifies the stressors, biotic decline and recommendations to protect watershed resources. The WMS will

identify life history stages critical to the restoration of the fishery in the watershed. The WMS will create plans toward greater ecosystem health to meet both the local needs and those important for the Bay-Delta restoration.

d. Background and Biological/Technical Justification:

The watershed is comprised of several drainages that have unique qualities and habitats. Big Chico Creek has been important for holding and spawning habitat for Spring Run Salmon while Mud, Rock (Kusal Slough) and Sycamore Creeks have been shown to be important non-natal rearing areas for all salmonids.

Salmonid fry found in Mud and Rock Creeks have growth rates that are significantly greater than standard (Maslin, 95, 96). These fry smolt sooner and are healthier and more likely to survive downstream migration throughout the Delta. Fry were also found significantly further upstream in Mud and Rock Creeks than in Big Chico Creek. This may be due to geomorphologic characteristics, presence of exotic species or other unknown reasons. Studies need to be conducted to determine limiting factors in the life history stages that appear to be critical to sustaining and increasing the salmonid population.

Big Chico Creek and Lindo Channel flow through the urban area of the City of Chico contributing significantly to the quality of human life. Chico has not grown so large that options for restoration, purchase of easements and flood plain acquisition are no longer feasible. While Chico is still growing around its streams and flood plains, more options for preservation and restoration presently exist now than will be available in the future. The status of the watershed salmonid population, stock purity and potential for restoration have been assessed by California Dept. of Fish and Game (C.D.F.&G. 2-1-96). Specifically, salmonid populations were rated as sporadic and the potential for restoration moderate. It is essential that we act now to preserve and restore this race. The watershed stakeholders have made preservation and restoration of the fishery their most important priority.

e. Scope of Work:

The BCCWA will complete the scope of work for the Big Chico Creek Watershed in three phases. The first phase consists of preparing an evaluation of existing conditions, and conducting a survey of watershed stakeholders; the second phase is the development of an overall watershed management strategy (WMS); and the third phase consists of implementation and monitoring of the strategies identified in phase two. This grant solicits funding for the first two phases only. As such the scope of work description that follows is for the first two phases.

Phase I: Existing Conditions Review and Stakeholder Surveys

Task I.1: **Watershed History Evaluation.** BCCWA will review the physical and land use history of the watershed to determine past conditions, including previous fish migration patterns, past extent of riparian vegetation, and stream meanderings;

Task I.2: **Review of Education Programs.** BCCWA will conduct a survey of existing education programs that currently exist in the watershed service area. Special attention will be given to any important aspects of the watershed condition that are not currently well elucidated to the public;

Task I.3: **Laws and Regulations Survey.** BCCWA will conduct a detailed survey of local, state, and federal regulations to determine agency notification requirements, fees, permits, or other applicable requirements that need to be adhered to during the process of restoring the Big Chico Creek Watershed and guiding near by land development;

Task I.4: **Water Quality Data Search.** BCCWA will conduct a survey of agency, University and other records to determine what water quality data currently exists;

Task I.5: **Riparian/Stream Survey.** BCCWA will conduct a survey on Big Chico Creek and its major tributaries to delineate areas where riparian habitat is predominant. We will also identify areas that could potentially be converted to good riparian habitat, though currently not in such condition. Permanent cross-sections will be established for long term monitoring;

Task I.6: **Complete Watershed GIS.** Through its supporting team members at Chico State Geologic Information Center, BCCWA will complete the GIS for the watershed that has already been partially developed by the Department of Water Resources;

Task I.7: **Review Existing Management Plans Associated with Watershed.** BCCWA will review existing habitat management plans to provide an understanding about how other parties are managing the watershed, and to increase the likelihood that an overall watershed management strategy will be complimentary rather than conflict with existing plans;

Task I.8: **Aquatic/Biotic Inventory.** BCCWA will conduct a survey of the creek to determine the nature of existing plant and animal species in the creek. Records (e.g. fish counts) will be collected that help evaluate the status of listed species or species of special concern. Particular attention will be paid to species that are non-native, and that may have a negative impact on wild migrating fish species;

Task I.9: **Geomorphic/Hydrology/Flood Study.** To accomplish this task, we will use an open channel hydraulic model. The model will be used to determine flow velocities and depths as a function of location along the streams for different flows. The velocities and depths will be used to determine erosion factors acting on the streambeds of Big Chico Creek and its tributaries. These will be used to estimate the size of gravel that will be mobilized for different creek flow conditions. The quantities of sediment moved will be estimated as a function of distance using existing analytical formulae for the different modes of transport. Because of the size of the sediment involved, suspension will not be considered as a mode of transport. The results of this evaluation will be used to estimate the transport of different sized gravel introduced at different locations within the streams. The model will also be used to check to make sure that proposed changes to bedload transport in the stream will not increase flooding risk;

Task I.10: **Land Use and Recreation Surveys.** BCCWA will review adjacent land uses and recreational uses of the creek resource;

Task I.11: **Technical Team Review.** BCCWA's technical team consisting of experts from agency personnel, the University as well as Metcalf & Eddy, Inc. will provide quality control review on all data obtained as a part of the existing conditions assessment;

Task I.12: **Stakeholder Workshops.** BCCWA will conduct two (2) workshops with interested parties from each watershed drainage to solicit issues, ideas, and concerns about the watershed management strategy;

Task I.13: **Prepare Draft Existing Conditions Report and Submit to Stakeholders.** This report will include data obtained through execution of tasks I.1 through I.12, and will include feedback provided by stakeholder at workshops.

Task 1.14: **Incorporate Stakeholder Comments on Report and Submit Final Existing Conditions Report.**

Phase II: Development of Watershed Management Strategy (WMS)

Task II.1: **Gravel Placement and Monitoring Plan.** As a part of the WMS, we will develop a plan for improving the gravel areas for salmon spawning. The plan will specify the following elements:

1. Timeline for placement of gravel;
2. Optimal locations on the streams for gravel placement;
3. Amount of gravel to be placed in each location in tons;
4. Grain size distribution requirements for the gravel;
5. Expected maintenance timeline for replenishing gravel as part of an ongoing long-term maintenance program;

Task II.2: **Develop Comprehensive WMS Outline.** BCCWA will develop a detailed outline of the WMS handbook for the critical review of stakeholders;

Task II.3: **Prepare Draft WMS.** After receiving feedback on the WMS outline, BCCWA will provide a draft WMS Handbook for distribution and review;

Task II.4: **Incorporate Stakeholder Comments on Report and Submit Final Watershed Management Strategy Handbook.**

(Please see *Attachment A* - Scope of Work)

f. Monitoring and Data Evaluation: Data that needs to be evaluated for this project will come from many sources including:

1. Published studies
2. Historical information revealed by stakeholders
3. New data revealed by canvassing the existing conditions of the stresses (e.g. riparian vegetation conditions, stream cross-section profile, etc.)

The BCCWA will establish a highly qualified technical peer review group that will be responsible for checking all evaluations and conclusions drawn from the data. This group serves a vital quality control function to make sure that data evaluations and conclusions are valid, and consistent with the current state of scientific and engineering practices. The peer review group will consist of technical experts from state and federal agencies (DWR, USFWS, CDFG), CSU, Chico, and Metcalf & Eddy. State agencies have been incorporated into the peer view process because they will have various statutory authority and the most knowledge of similar programs occurring statewide, and may be able to coordinate the efforts of the BCCWA with other programs.

g. Implementability: With four years of direct experience on Chico Creek projects, the BCCWA and CSUC Research Foundation are prepared for the immediate implementation of the listed tasks that work toward maintaining and improving fisheries and water quality for all beneficial uses.

IV. Costs and Schedule to Implement Proposed Project

a. Budget Costs:

Big Chico Creek Watershed Alliance	Direct Labor Hours	Direct Salary & Benefits	Overhead Labor 20%	Service Contracts	Materials & Acquisition Contracts	Misc. & Other Direct Costs	Total Costs
Phase I - Task I Existing Conditions Report	3,476	75,407	34,102	80,900	-0-	14,200	204,609
Phase I - Task II Stakeholder Survey	1,983	37,415	11,987	8,920	-0-	13,600	71,922
Phase II Watershed Management Strategy	3,554	78,561	24,383	6,180	-0-	37,175	146,299
Total Request	9,013	191,383	70,472	96,000	-0-	64,975	422,830

b. Schedule Milestones

Phase I

Early Spring 1998	1st Stakeholder Survey of Issues and Concerns Workshop by watershed drainage
	2nd Stakeholder Survey Workshop by watershed drainage - draft document distributed
Early Spring 1998	Existing Watershed Conditions Report - Data collection and draft document distributed to Technical Team for review
Spring 1998	3rd Stakeholder Survey Workshop by drainage - draft document distributed
Early Summer 1998	1st Stakeholder review of Existing Conditions Report Workshop - draft document reviewed with comments from Technical Team
Spring 1998	Late Final Stakeholder Survey of Issues and Concerns by drainage distributed
	2nd Stakeholder Workshop to review Existing Conditions Report- draft document distributed
Early Summer 1998	Final Existing Watershed Conditions Report distributed
Summer 1998	1st Comprehensive Stakeholder Survey of Issues and Concerns Workshop - draft distributed
Summer 1998	2nd Comprehensive Stakeholder Survey of Issues and Concerns Workshop
Summer 1998	Final Comprehensive Stakeholder Survey of Issues and Concerns distributed

Phase II

Early Fall 1998	1st Watershed WMS Workshop outline by drainage
Fall 1998	2nd WMS Workshop - draft outline by drainage distributed
Winter 1998	3rd WMS Workshop - draft document by drainage distributed
Early Spring 1999	4th WMS Workshop - draft document by drainage distributed
Spring 1999	Final Draft WMS by drainage distributed
Late Spring 1999	Final Watershed Management Strategy by drainage distributed
Spring 1999	1st Workshop to develop Comprehensive WMS outline and incorporate drainage WMS documents
Late Spring 1999	Develop Draft Comprehensive WMS and distribute to stakeholders
Early Summer 1999	2nd Workshop to review Draft Comprehensive WMS
Summer 1999	3rd Workshop to review Draft Comprehensive WMS
Late Summer 1999	4th Workshop to review Draft Comprehensive WMS
Late Summer 1999	Final Watershed Management Strategy distributed to stakeholders

(Please see *Attachment C* - Phase I Stakeholder Survey of Issues & Concerns, *Attachment D* - Existing Conditions Report and *Attachment E* - Phase II Watershed Management Strategy)

c. Third Party Impacts

All impacts from this project are beneficial. No mitigation will be required.

V. Applicant Qualifications

The Big Chico Creek Watershed Alliance (BCCWA) was formed in 1991 by concerned citizens who began a process that was intended to ensure the Big Chico Creek Watershed's vitality and preserve and restore native salmon and steelhead populations dependent upon a healthy watershed. BCCWA created a set of Goals and Objectives that have been the guide for many of the projects that have been accomplished. One of the long term goals of the BCCWA is to identify problems that have led to the historic decline in populations of anadromous salmonids in Big Chico Creek watershed and find solutions to these problems which don't compromise the interests of the stakeholders in the watershed.

BCCWA will retained a local watershed engineering firm, Metcalf & Eddy (M & E), to assist in the evaluation of sediment transport characteristics in the streams and to determine the best methods to make stream condition most

amenable to migrating fish populations. M & E has been providing watershed engineering services in the Chico area for the last 11 years, including work on Big Chico Creek and Little Chico Creek.

Glenda Humiston, AGvocates, will be retained to facilitation the Stakeholder Workshops in Phase I and II. Ms. Humiston has experience facilitating communication between varied and sometimes opposing interests in watershed planning. Glenda has worked with the Butte Creek Watershed Conservancy facilitating Stakeholder Workshops and understands local concerns. Her experience bringing advisors, educators and technical experts into the watershed process will be valuable in the development and implementation of the WMS.

The management and organization of the project will be:

Big Chico Creek Watershed Alliance
Project Director - D. Holtgrieve
Project Manager - S. Gibbs
University Faculty - Student Assistants
Community Volunteers
Consultants

Project Director:
Dr. Donald Holtgrieve, Professor of Geography and Planning, CSUC. He teaches courses on water resources and environmental planning. Dr. Holtgrieve has been the recipient of many grants and awards focusing on the environment, specifically water quality and watershed management. He has extensive experience in directing grants awarded by both State and Federal Agencies, as well as official certification in Land Use, Transportation, and Wetlands Planning. He has supervised over 200 projects in the last 25 years. As Project Director, Dr. Holtgrieve will provide assurance that adequate resources are provided tot he project, and will be the first line of communication between CALFED Category III and CSUC.

Project Manager:
Suzanne Gibbs: Appointed to the City of Chico's Bidwell Park and Playground Commission in 1989, Gibbs has been a key player in the protection and restoration of the Big Chico Creek watershed. In 1991 Gibbs was voted Chair of the Commission and appointed by the City Council to chair the Big Chico Creek Task Force investigating options to the de-watering of the creek by unscreened agricultural pumping. With the relocation of the pumps to the Sacramento River, the Task Force completed its objectives, allowing land owners and other interested parties to expand the scope of restoration and preservation in the watershed by becoming the Big Chico Creek Watershed Alliance. Suzanne has been the spokesperson for watershed education, preservation and restoration for the Alliance since its inception. She is currently the coordinator for the Watershed Alliance. She has represented the Alliance at many local and regional conservation programs including the Spring Run Salmon Workgroup, California Dept. of Fish & Game's Spring Run Technical Team, SB 1086 Riparian Restoration Program, and the Sacramento River Watershed Program. Gibbs has extensive management and organizational skills providing growth and capitalization for both her own business and several small to medium sized companies. She received a BS in Chemistry from CSU, San Diego.

Project Facilitator:
Glenda Humiston. Ms. Humiston brings over 20 years experience, education and contacts in agricultural, environmental and legislature fields to AGvocate, which she founded in 1992. Her services include facilitation and coordination of policy dialogues. AGvocate can access and coordinate activists and experts in environmental planning, economic development, water issues, agricultural technologies, land use, marketing, and other natural resource policy areas. Ms. Humiston's experience includes management of a variety of projects, some of which are:

⇒ **Development of the California Rangeland Water Quality Management Plan**
⇒ **Coordination of an extensive watershed management effort for the Russian River Watershed**
⇒ **Delivery of Statewide Training Workshops on Watershed Management and Facilitation**

Humiston is currently President of the California Association of Resource Conservation Districts, received her MS from UC Davis in International Agricultural Development and BS from UC Davis in Animal Science /Construction Management.

Project Consultant: Metcalf & Eddy, Inc.

The following tables provide a brief snapshot of Metcalf & Eddy's (M&E) qualifications to perform the hydrology and sediment transport evaluations.

M&E STAFF	EXPERIENCE
Dominique Brocard, PhD, P.E. *Senior Technical Advisor*	Vice President and project director specializing in the modeling and analysis of surface water and groundwater. Expertise in the areas of water quality modeling, wave impact analysis, groundwater flow and contamination, effluent mixing and dispersion, effluent disposal and permitting, and hydraulics. Has more than 20 years of experience in conducting and directing studies for industrial and environmental applications.
Alex Rafalovich, P.E. *Project Manager*	Project Manager with experience in water resources, sediment transport and gravel recruitment. His expertise encompasses water resource planning, design and construction, as well as water supply systems, water drainage assessments, and water reclamation assessments. He has conducted stream bedload transport research for the Massachusetts Institute of Technology.
Peter Miller, P.E. *Project Engineer*	Experience in water supply systems planning and design, wastewater treatment systems design, construction management, field data collection and analysis, stormwater studies, and HEC-1 and HEC-2 computer modeling.
Tom Venus, P.E. *Project Engineer*	Project Engineer with more than 10 years of experience in open channel hydraulics, environmental regulations, permitting and compliance. Experienced in implementation of field sampling programs for streams and rivers, health and safety plans, and quality assurance plans.

M&E EXPERIENCE	REPRESENTATIVE PROJECTS
Sediment Transport: M&E has developed, adapted and effectively applied a wide range of numerical modeling tools related to flood control, sediment transport and water quality analyses. This experience includes developing new models, modifying existing models, and applying particular models to site-specific cases. Modeling and monitoring projects for estuaries and coastal areas, rivers, lakes, and reservoirs.	U.S. Army Corps of Engineers (COE), St. Louis District Metropolitan District Commission (MDC), Massachusetts Wycoff, New Jersey Manasquan River Basin, New Jersey
River Systems: Significant studies in the area of fluvial geomorphic analyses for a river system, including geologic, hydrology and hydraulics studies, Bio-hydraulics, Risk-Based Analyses of Water Resources Projects and the Design and Analyses of Water Resources Systems. Develop feasibility studies, and provide system design, environmental permitting services, and construction management for the development of a river basin into a major water supply resource.	Manasquan River, New Jersey San Luis Obispo, California Greenfield, Massachusetts - Deerfield River Stratford, Connecticut - Housatonic River Springfield, Massachusetts - Connecticut River Connecticut - Thames River Massachusetts - French River, Fall River Kingston, Tennessee - Holston River
Flood Control: M&E's experience in hydrologic and hydraulic engineering encompasses studies, planning, design, and construction management for flood control, stormwater, and drainage projects. Hydrologic investigations have included rainfall data collection, establishment of rainfall and runoff relationships, and estimation of peak runoff, and flooding impacts. Based on evaluations made with the use of computer models such as HEC-1, HEC-2, and SWMM, M&E develops cost-effective remedial solutions to alleviate flooding, improve drainage, and assist clients in preparing flood plain regulation activities and stormwater master plans.	Quincy, Massachusetts U.S. Army COE, Quincy, Massachusetts East Bay Municipal Utility District (EBMUD), California City and County of San Francisco, California City of Tampa, Florida Little Chico Creek, California American River, California
Bio-hydraulics Studies: M&E has analyzed water supply systems and facilities in relation to their impacts on the natural environment and species native to a given area. Extensive experience in applying the environmental sciences to define the interrelationship of reservoirs and their tributaries and watersheds, aquifers, and contaminant movement. Projects have involved comprehensive master plans, supply investigations and surveys, citing studies, water quality analyses and modeling, environmental studies, and facility assessments. In this work, we have dealt with wildlife habitat restoration and fish migrations and spawning studies among other issues.	Maumee River, Ohio U.S. EPA, French River, Massachusetts and Connecticut San Luis Obispo, California North Kingston, Rhode Island North Dartmouth, Massachusetts San Pasqual Valley, California Westfiled, Massachusetts Poughkeepsie, New York

PROPOSED SCOPE OF WORK

Existing Conditions Report Phase I

- Watershed History Evaluation
- Review Education Programs
- Laws and Regulations Survey
- Water Quality Data Search
- Riparian/Stream Survey
- Complete Watershed GIS
- Review Existing Management Plans Associated with Watershed
- Aquatic/Biotic Inventory
- Geomorphic/Hydrology/Flood Study
- Land Use and Recreation Surveys
- Technical Team Review
- Stakeholder Workshops
- Prepare Draft Existing Conditions Report and Submit to Stakeholders
- Incorporate Stakeholder Comments
- Distribute Final Existing Conditions Report

Stakeholder Survey Phase I

- Hold stakeholder workshops (2) in each drainage to solicit issues & concerns
- Create and distribute draft documents for each drainage
- Hold workshops to review each draft drainage survey
- Incorporate stakeholder comments and distribute survey by drainage
- Hold watershed wide workshop to review and comment on drafts
- Compile surveys and comments
- Distribute final stakeholder survey

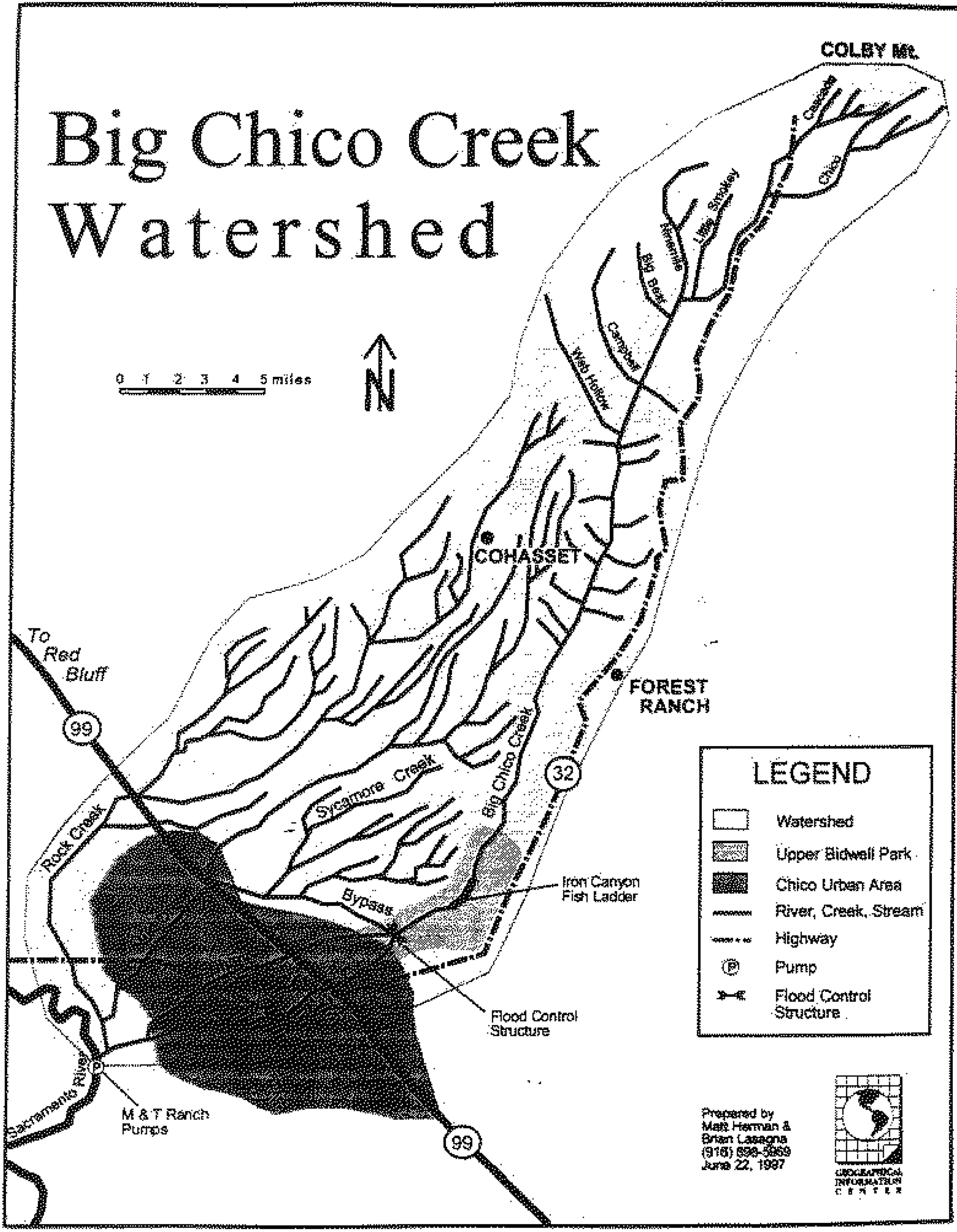
PHASE II - Watershed Management Strategy WMS

TASKS

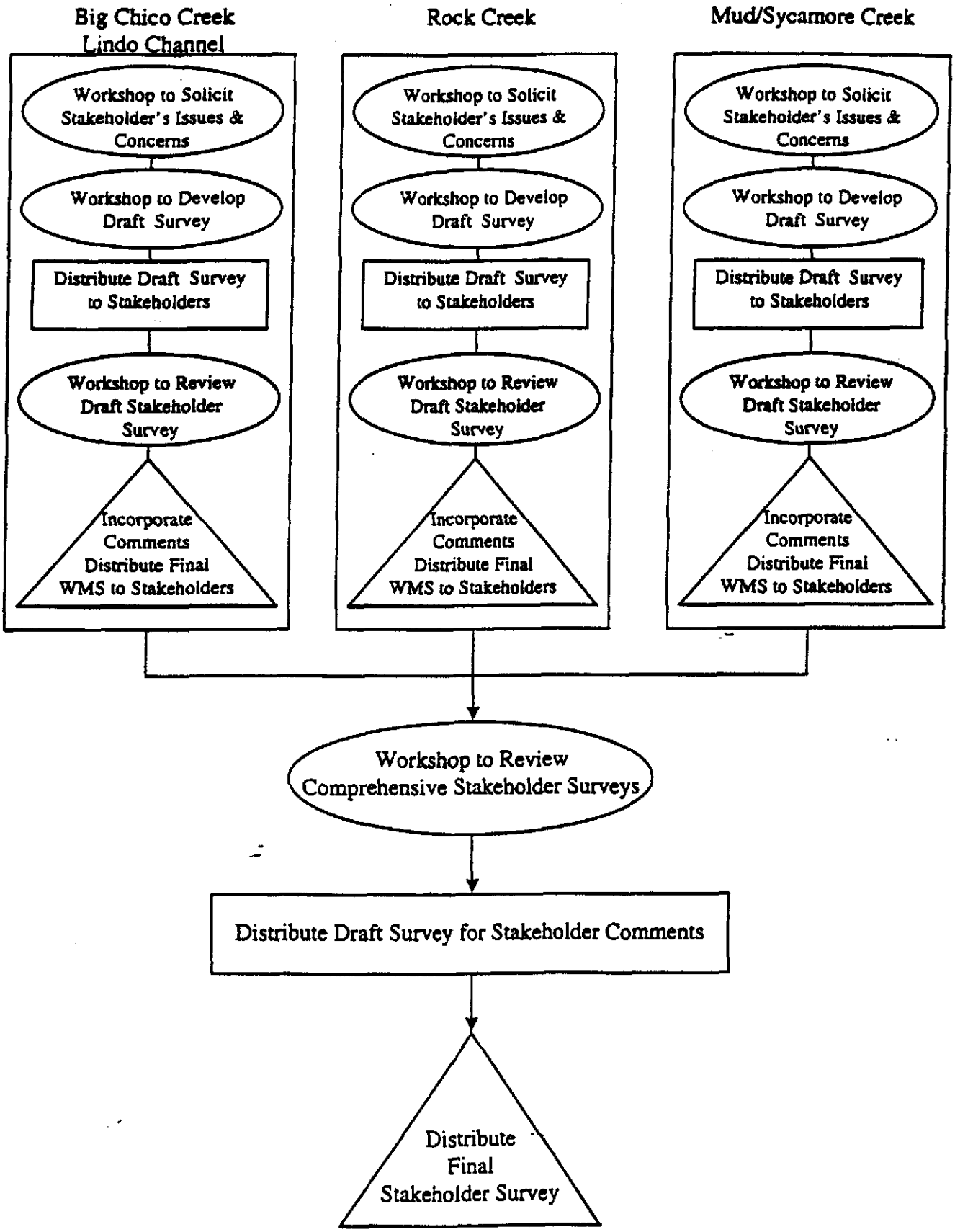
- Establish Gravel Placement and Monitoring Plan
- Develop Comprehensive WMS Outline
- Develop Draft WMS
- Distribute Draft WMS to Stakeholders
- Incorporate Stakeholder Comments
- Distribute Final WMS to Stakeholders

PHASE III - Project Implementation

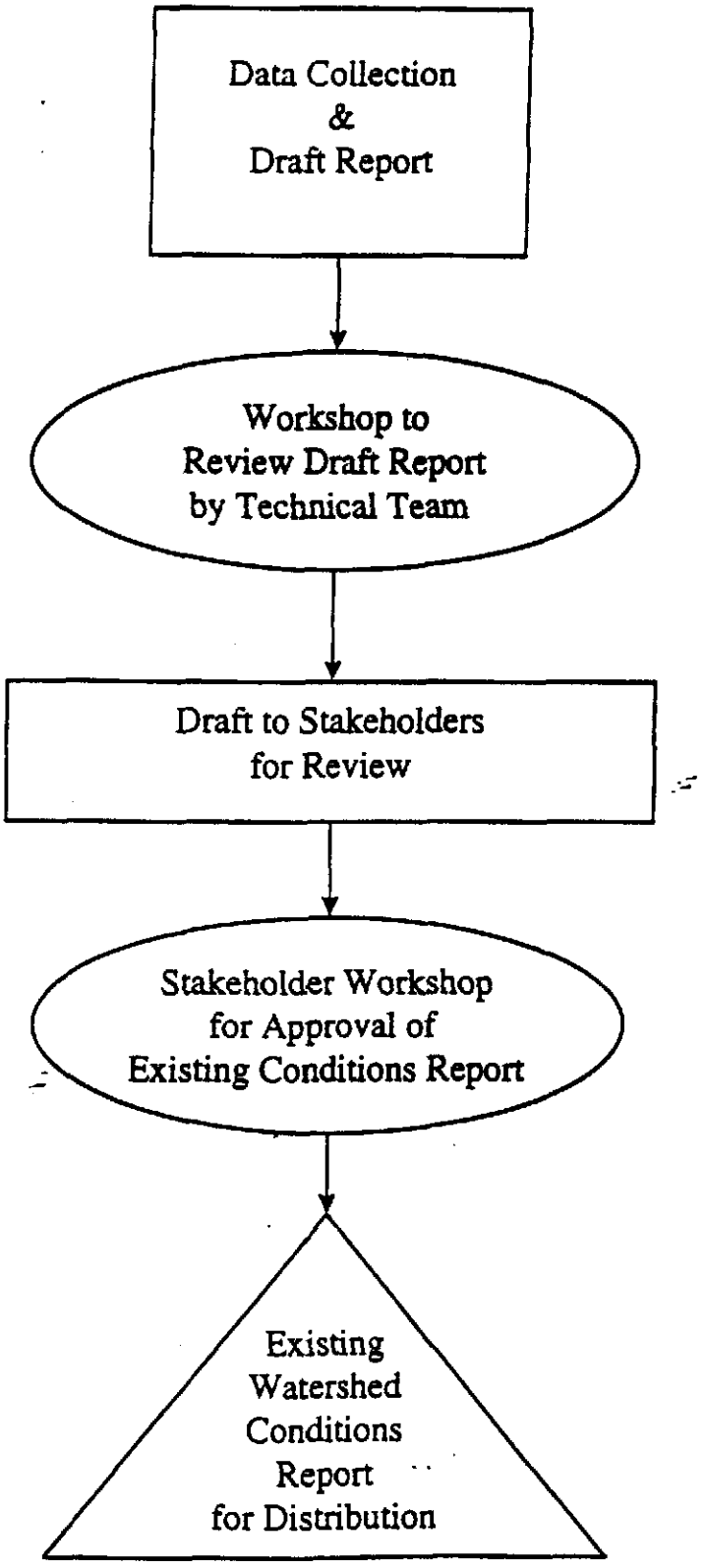
Programs and projects will be implemented as funding becomes available.


Big Chico Creek
Watershed
COLBY Mt.
Cascade
Chico
Little Smokey
Big Bear
Campbell
Web Hollow
COHASSET
FOREST
RANCH
Big Chico Creek
Sycamore Creek
Rock Creek
To
Red
Bluff
99
32
Bypass
Iron Canyon
Fish Ladder
Flood Control
Structure
Sacramento River
M & T Ranch
Pumps
0 1 2 3 4 5 miles
N
LEGEND
Watershed
Upper Bidwell Park
Chico Urban Area
River, Creek, Stream
Highway
Pump
Flood Control
Structure
Prepared by
Matt Herman &
Brian Lasagna
June 22, 1997

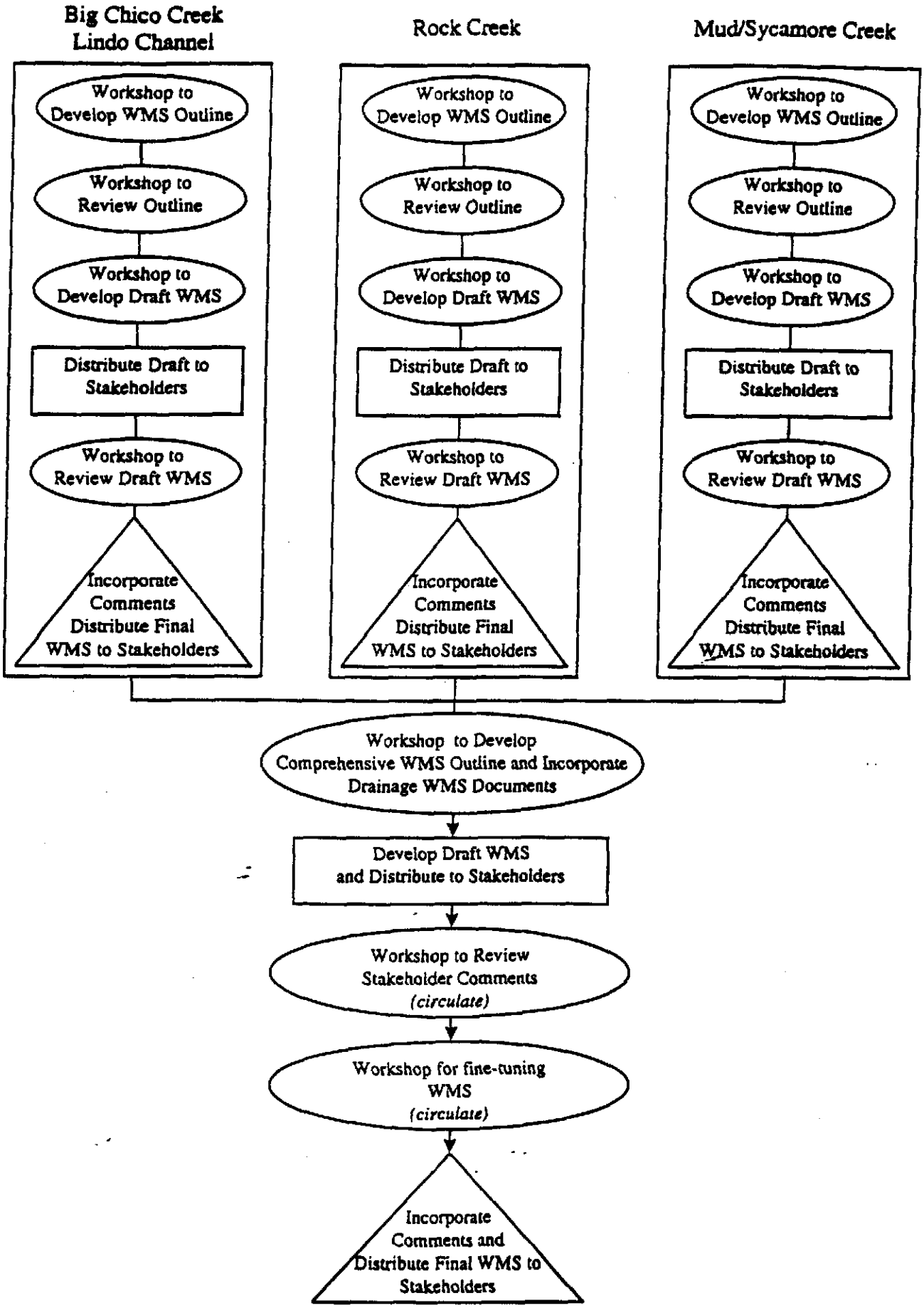
PHASE I - STAKEHOLDER SURVEY OF ISSUES & CONCERNS



PHASE I - EXISTING CONDITIONS REPORT



PHASE II - WATERSHED MANAGEMENT STRATEGY WMS



STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 9 (REV. 3-88) FSC

COMPANY NAME

CSU, Chico Research Foundation

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Jeff Wright

DATE EXECUTED

7/24/97

EXECUTED IN THE COUNTY OF

Butte

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

Director, Office of Sponsored Programs

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

CSU, Chico Research Foundation